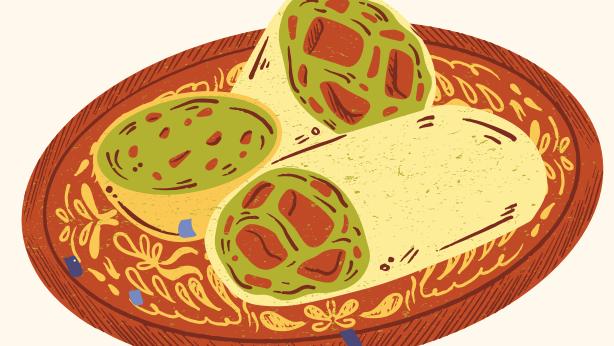




Analysis of Tortilla Prices, Inflation, & Crime in Mexico (2014-2024)



Data Analysis Bootcamp: Project 1

- Jose Manuel Romero Oceguera
- Luis Augusto Galíndez
- Miguel Angel Olmos Valderrama
- Valeria Itzel Jimenez Paz



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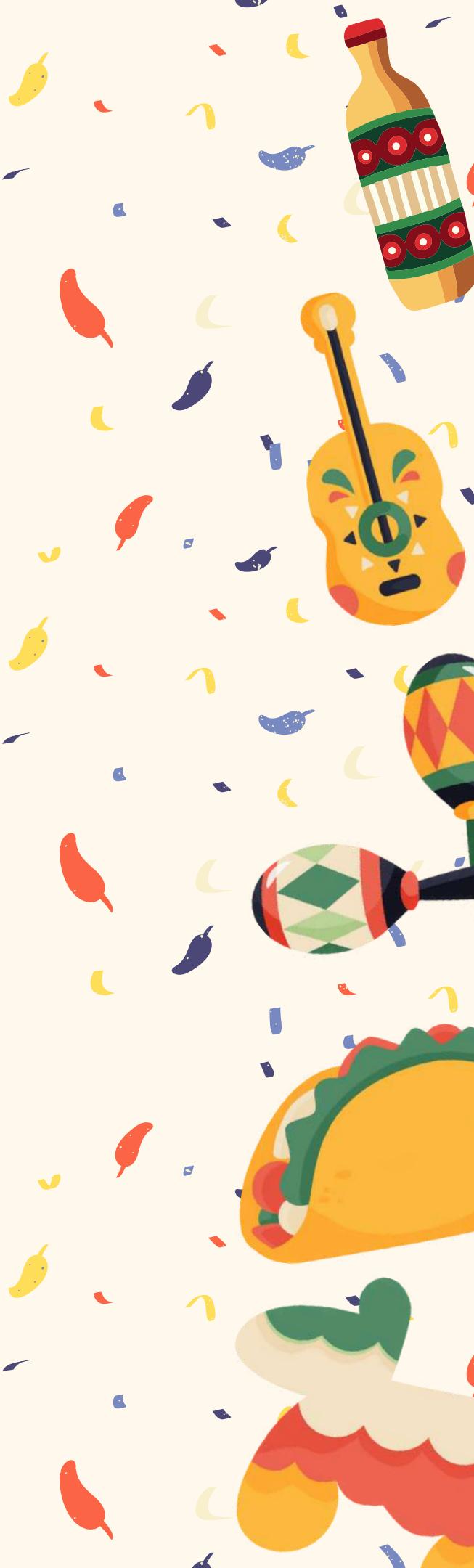
- Crime vs Tortilla Price Map (States with Highest Increase)
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- Connecting to the Geoapify API and
- Sample economic zones in Geoapify of highest & lowest tortilla price in 2024
- Monetization Recommendations with the Tortilla Price Analysis Data

5. Conclusion

6. References



QUESTIONS TO ANSWER:



1.- IS THERE CORRELATION BETWEEN THE INCREASE IN PRICE OF TORTILLAS IN MEXICO FROM 2014 TO 2024 WITH INFLATION RATE OVER THE SAME PERIOD?

2.- IS THERE CORRELATION BETWEEN THE INCREASE OF PRICE IN TORTILLAS IN MEXICO FROM 2015 TO 2021 WITH CRIME RATE OVER THE SAME PERIOD?

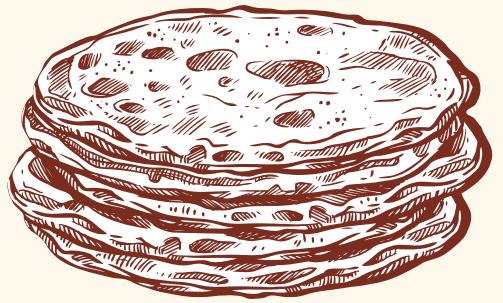
3.- CAN WE CASH IN WITH SOME OF THE INFORMATION OBTAINED?



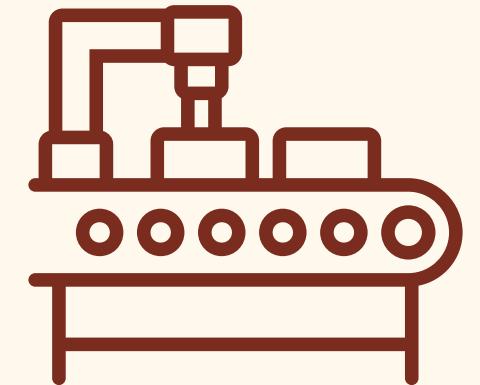
Tortilla Price increase 2014-2024 in all of Mexico States

Introduction & Filtering of Tortilla Price Data

Economic Importance of the Tortilla Industry in Mexico



Staple food in the Mexican diet, with per capita consumption of **85 kilograms/year** (Castillo, 2023).



11.6 million tons of tortillas produced in 2020, positioning Mexico as a global leader (Castillo, 2023).



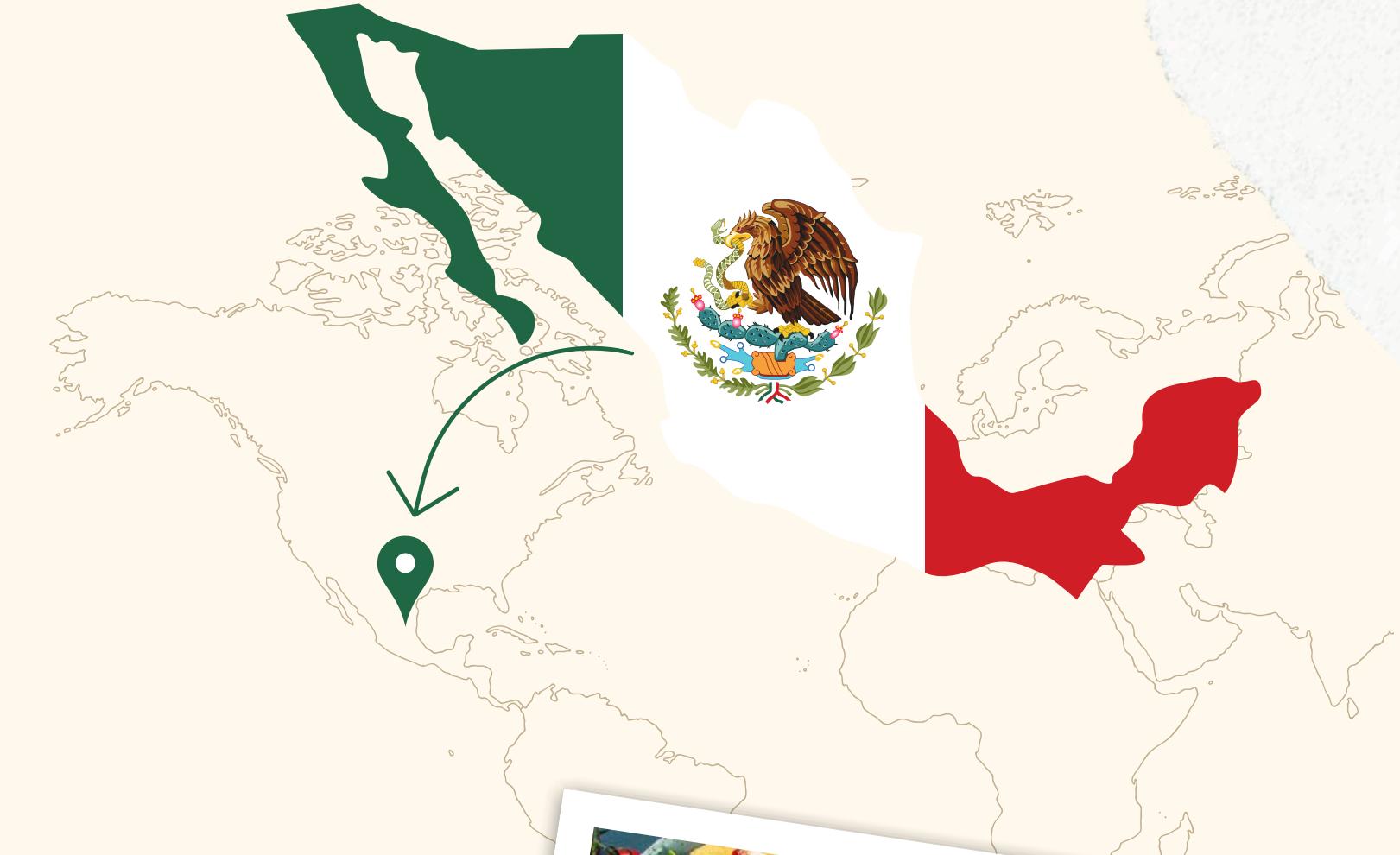
Employs **79,000 people** in dough and tortilla manufacturing (Castillo, 2023).



In 2020, **54,000 tons of tortillas** were exported, primarily to the U.S. and Canada (Castillo, 2023).



Rising demand for non-traditional tortillas (wheat, multigrain, gluten-free) (Castillo, 2023).

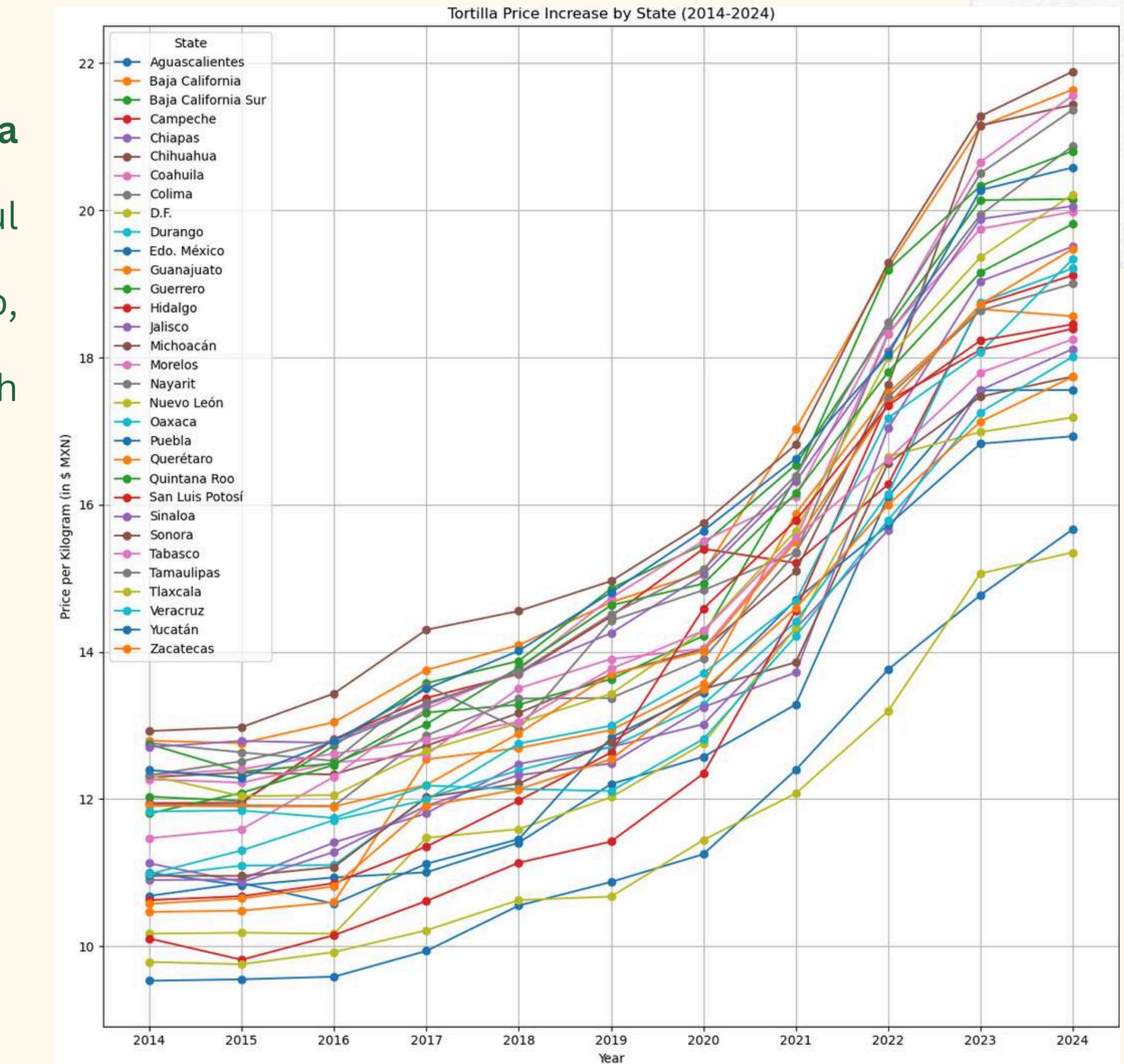


Tortilla Price increase 2014-2024 in all of Mexico States

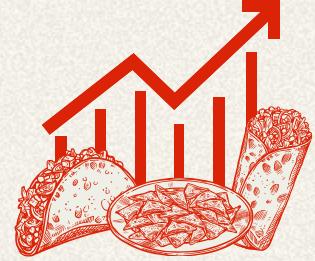
Introduction & Filtering of Tortilla Price Data

Explanation of the CSV filtering process for tortilla prices by year and state

- 1st part: Data filtration by 10 years for useful analysis
- 2nd part: Plot price increase in all states in Mexico, then Top 5 States and Bottom 5 States
- 3rd part: Comparison of Price increase with Inflation Rate. Check for a correlation

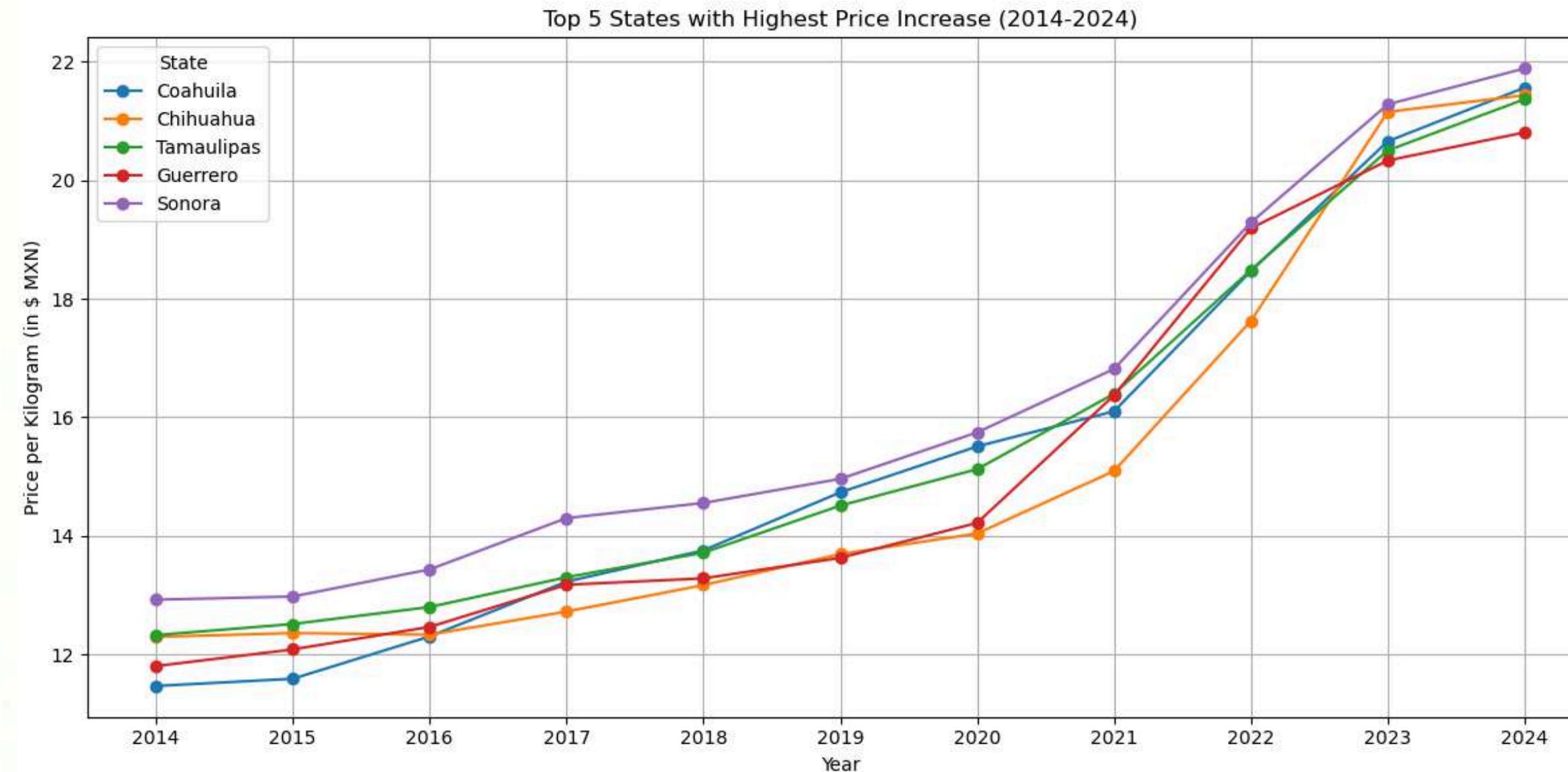


Top 5 States with Highest Price Increase (2014-2024)



Inflation vs Tortilla Price Comparison (States with Highest Increases)

- “The price of tortillas is governed by supply and demand in a context of competition” - Juan Carlos Anaya, 2024 - Director of the Agricultural Markets Consulting Group (GCMA) (Rodriguez, 2024).
- Top 5 States are located in the northern part of the country

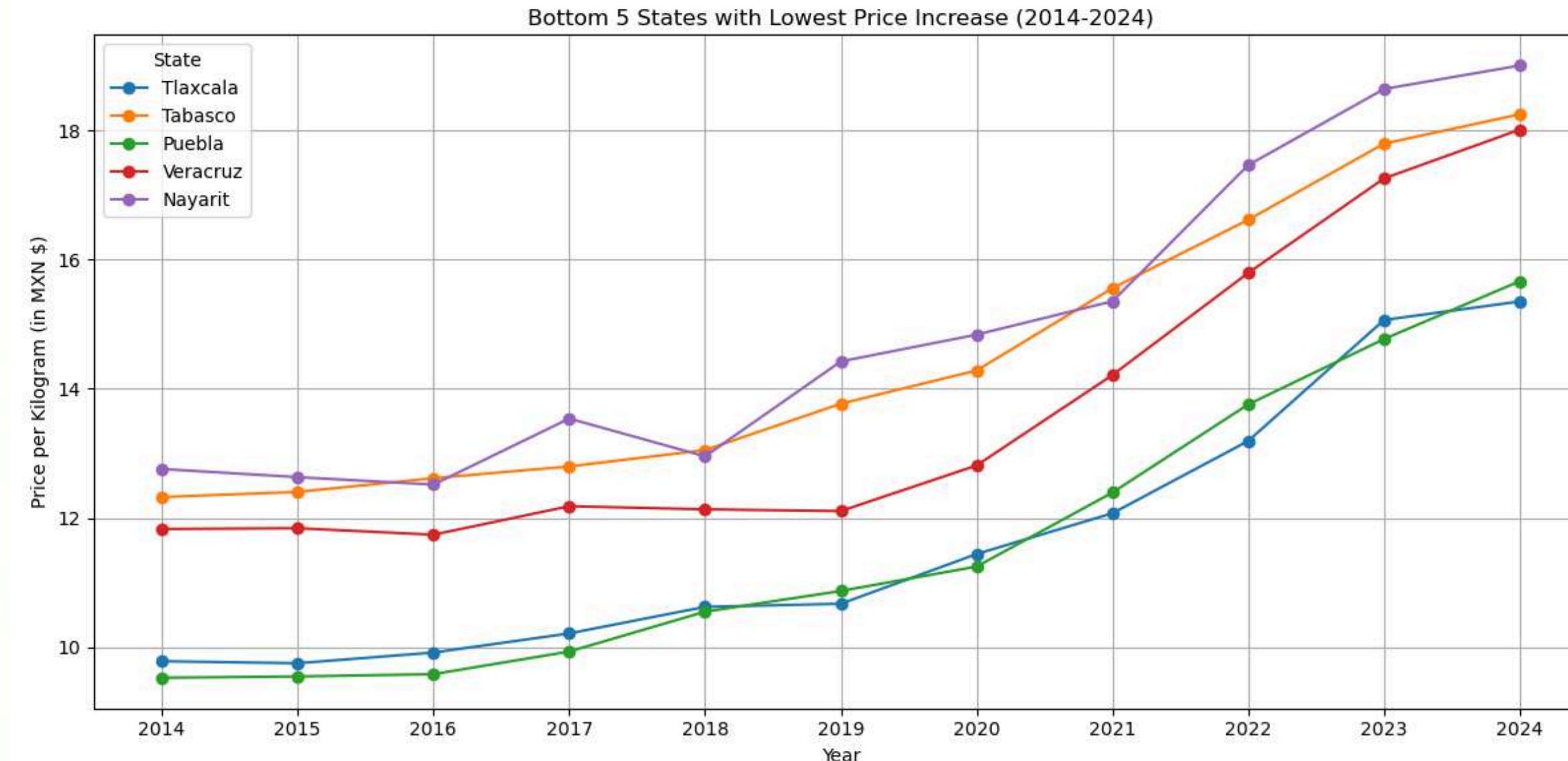


Top 5 States with Lowest Price Increase (2014-2024)



Inflation vs Tortilla Price Comparison (States with Lowest Increases)

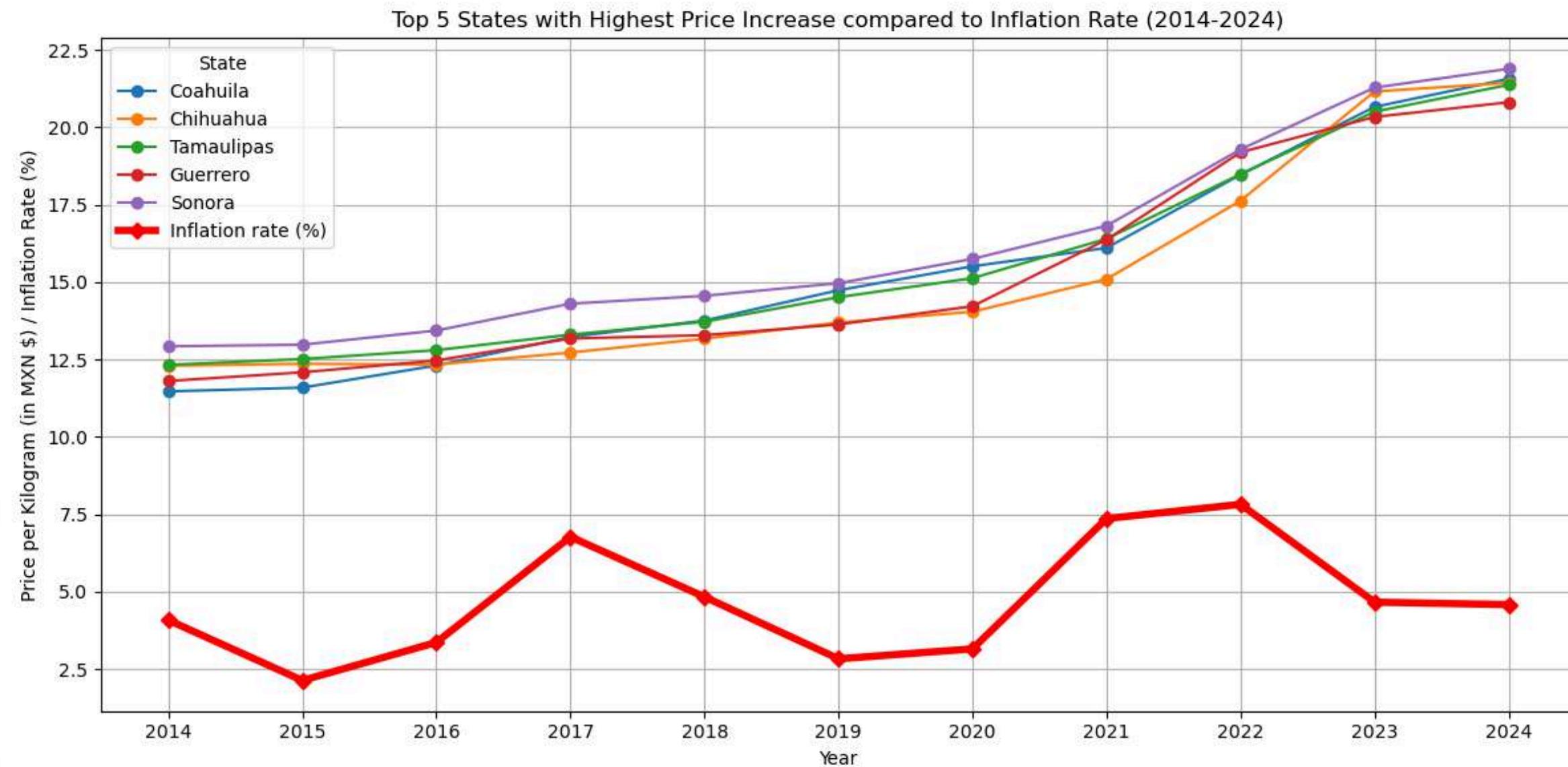
- During the last administration of President AMLO, there was a 72% increase in the price of tortillas (Rodriguez, 2024).
- The bottom 5 States are located in the central part of the country



Top 5 States with Highest Price Increase compared to Inflation Rate (2014-2024)

Filtering Historical Inflation Data (2014-2024)

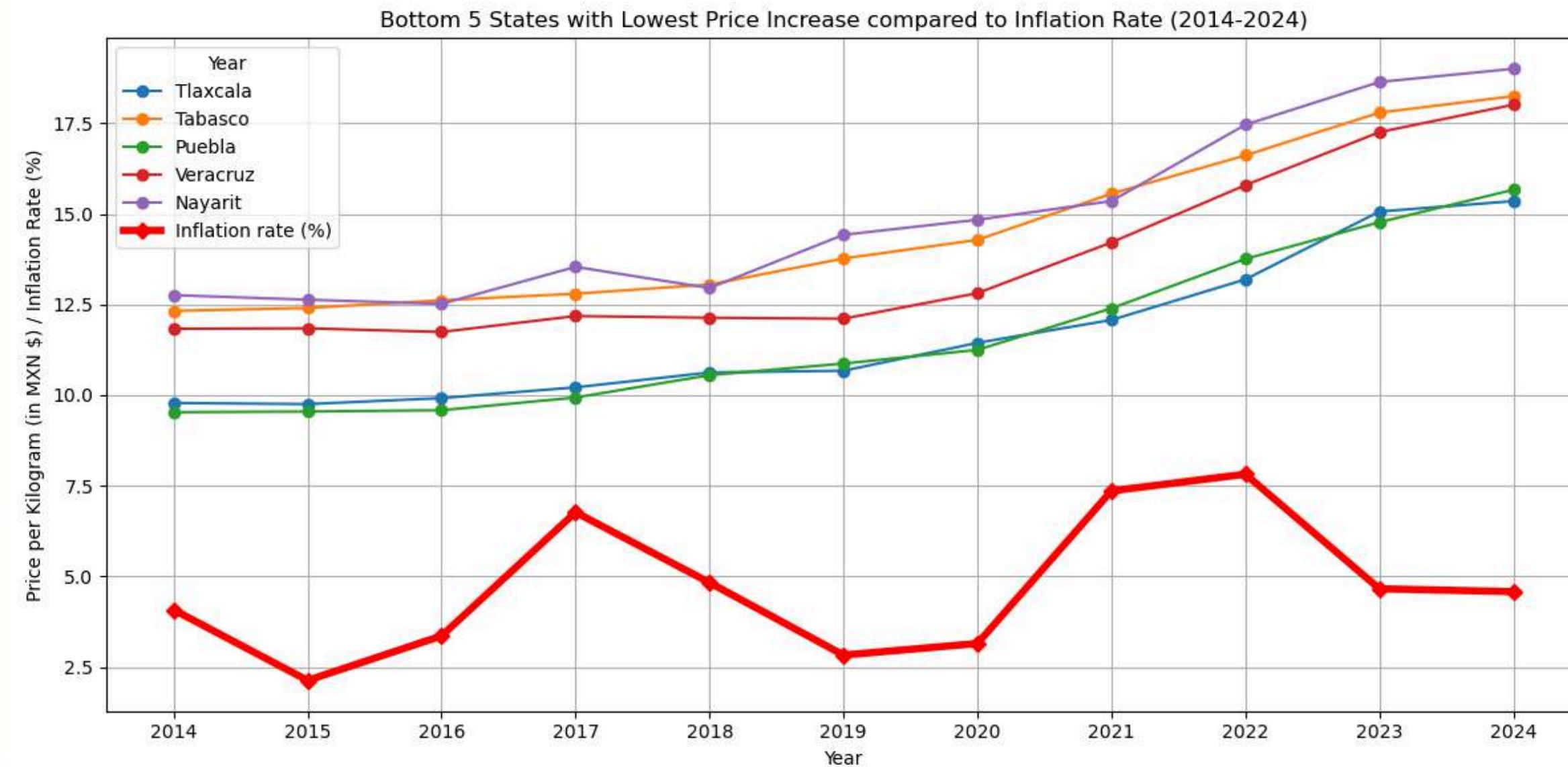
- CSV import from the Official government site to compare the inflation rate in the same period



Bottom 5 States with Lowest Price Increase compared to Inflation Rate (2014-2024)

Filtering Historical Inflation Data (2014-2024)

- CSV import from the Official government site to compare the inflation rate in the same period
- In May 2024, the National Tortilla Council attributed the rise in tortilla prices to increases in raw material prices and operating costs, electricity failures, inflation and insecurity (Rodriguez, 2024).



Mexico Travel Advisory

Travel Advisory
September 6, 2024

Mexico - See State Summaries

C K

Reissued after periodic review with updates for Chiapas, and Durango.

Country Summary: Violent crime – such as homicide, kidnapping, carjacking, and robbery – is widespread and common in Mexico. The U.S. government has limited ability to provide emergency services to U.S. citizens in many areas of Mexico, as travel by U.S. government employees to certain areas is prohibited or restricted. In many states, local emergency services are limited outside the state capital cities.

U.S. citizens are advised to adhere to restrictions on U.S. government employee travel. State-specific restrictions are included in the state advisories below. U.S. government employees may not travel between cities after dark, may not hail taxis on the street, and may not use dispatched vehicles, including app-based services like Uber, and regulated taxi stands. U.S. government employees should avoid traveling alone, especially in remote areas. U.S. government employees may not drive from the U.S.-Mexico border to or from the interior except daytime travel within Baja California and between Nogales and Hermosillo on Mexican Federal Highway 15D, between Nuevo Laredo and Monterrey on Highway 85D and between Ciudad Juarez and interior cities as noted in the Chihuahua section.

Read the [country information page](#) for additional information on travel to Mexico.

Do Not Travel To:

- [Colima state due to crime and kidnapping](#).
- [Guerrero state due to crime](#).
- [Michoacan state due to crime](#).
- [Sinaloa state due to crime](#).
- [Tamaulipas state due to crime and kidnapping](#).
- [Zacatecas state due to crime and kidnapping](#).

Los cinco estados de México que tuvieron las cifras más altas de **víctimas por homicidio doloso**, por entidad federativa son:

- Guanajuato con 250
- Estado de México con 222
- Baja California con 196
- Chihuahua con 191
- Michoacán con 156

Sobre el anterior informe la **SESNP**, expone que el número de homicidios dolosos que se registraron en total durante enero 2024, fue **mayor** que el pasado mes de **diciembre**.

Gitnux

Categories Editorial Process Contact

Home / Crime and Safety Statistics / Facts on Most Dangerous States in Mexico: Homicide, Violence, Crime

GITNUX REPORT 2024

Facts on Most Dangerous States in Mexico: Homicide, Violence, Crime

Explore Mexicos Most Dangerous States: Homicides, Extortion, Cartels, and Drug Trafficking – Unveiling the Truth.

Author: Jannik Lindner First published: 7/17/2024

Statistic 2

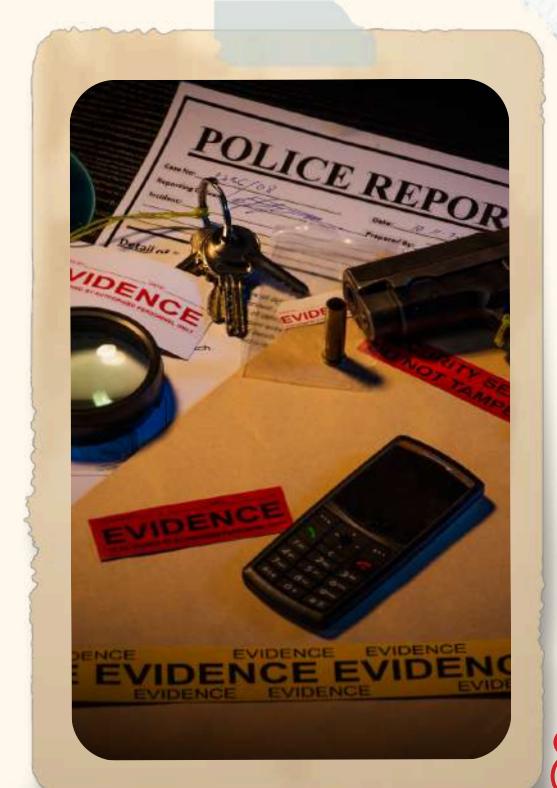
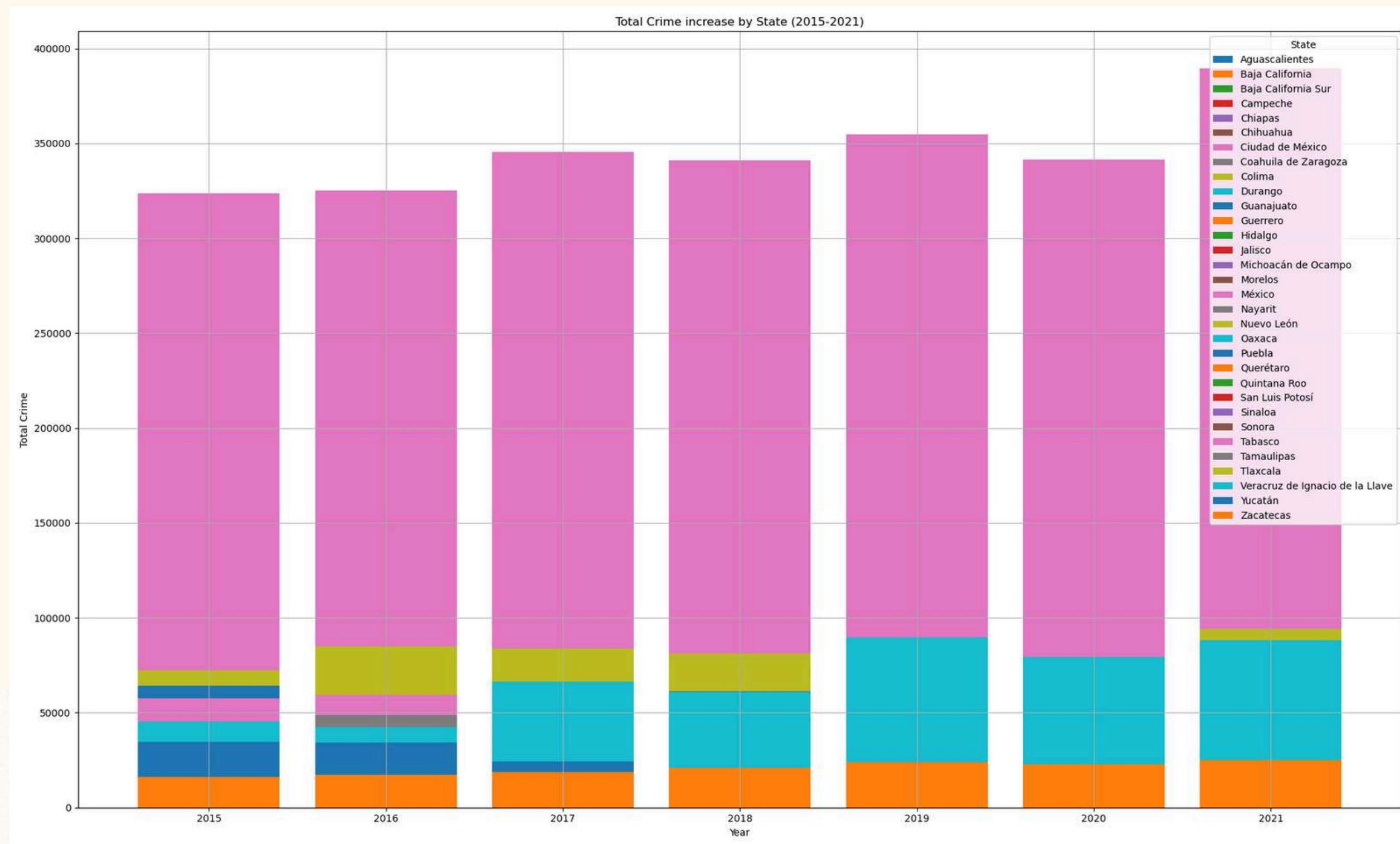
Michoacán has one of the highest rates of extortion in Mexico.



Total Crime increase by State (2015-2021) Bar Plot

Introduction and Crime Data Filtering

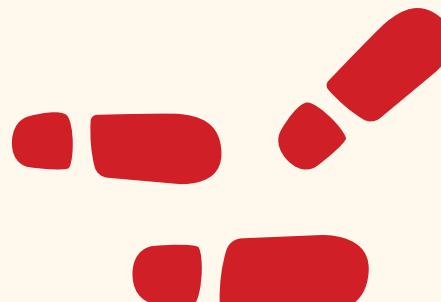
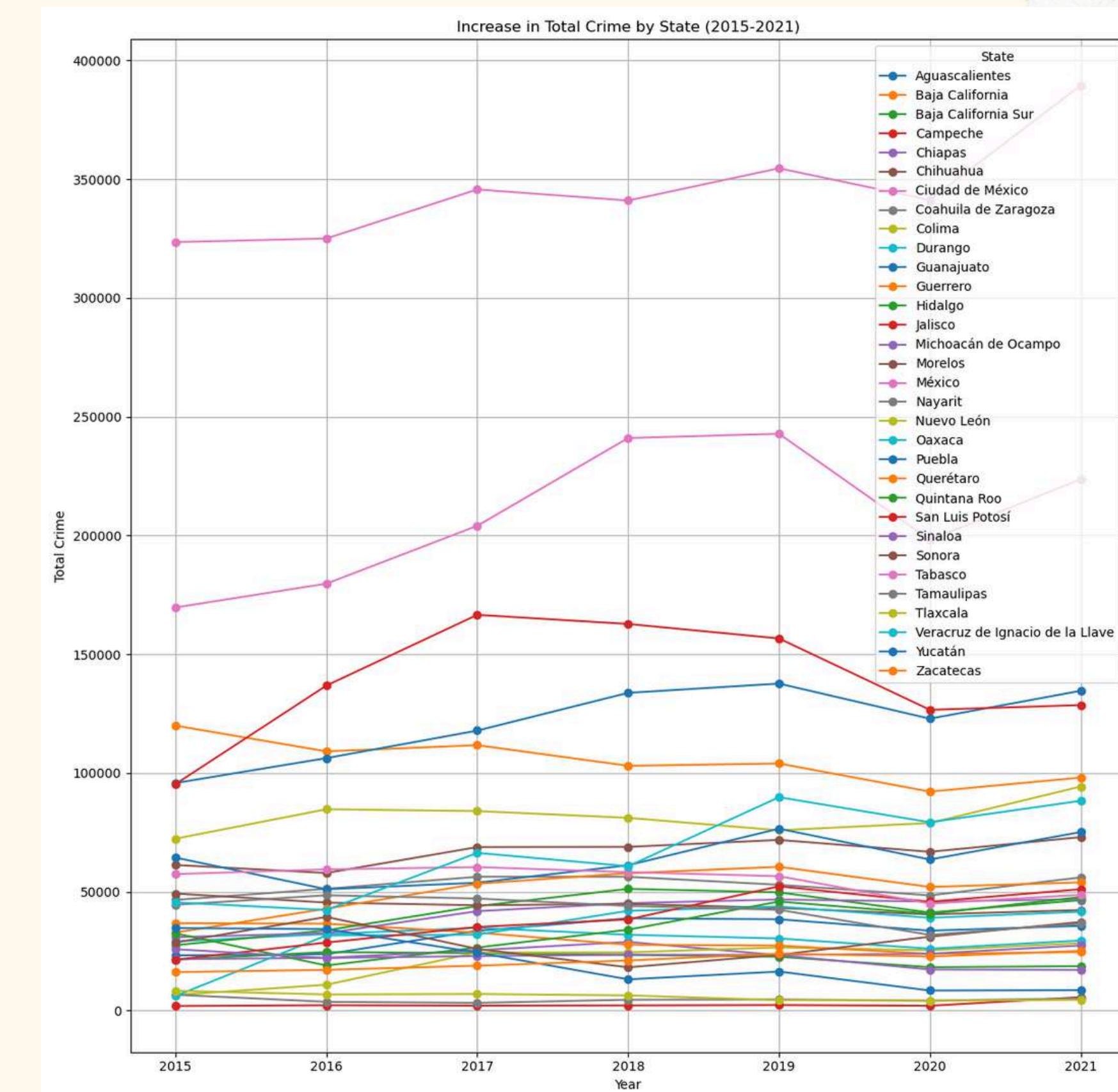
Overview of crime data in Mexico and filtering process for crime types and years



Total Crime increase by State (2015-2021) Line Plot

Introduction and Crime Data Filtering

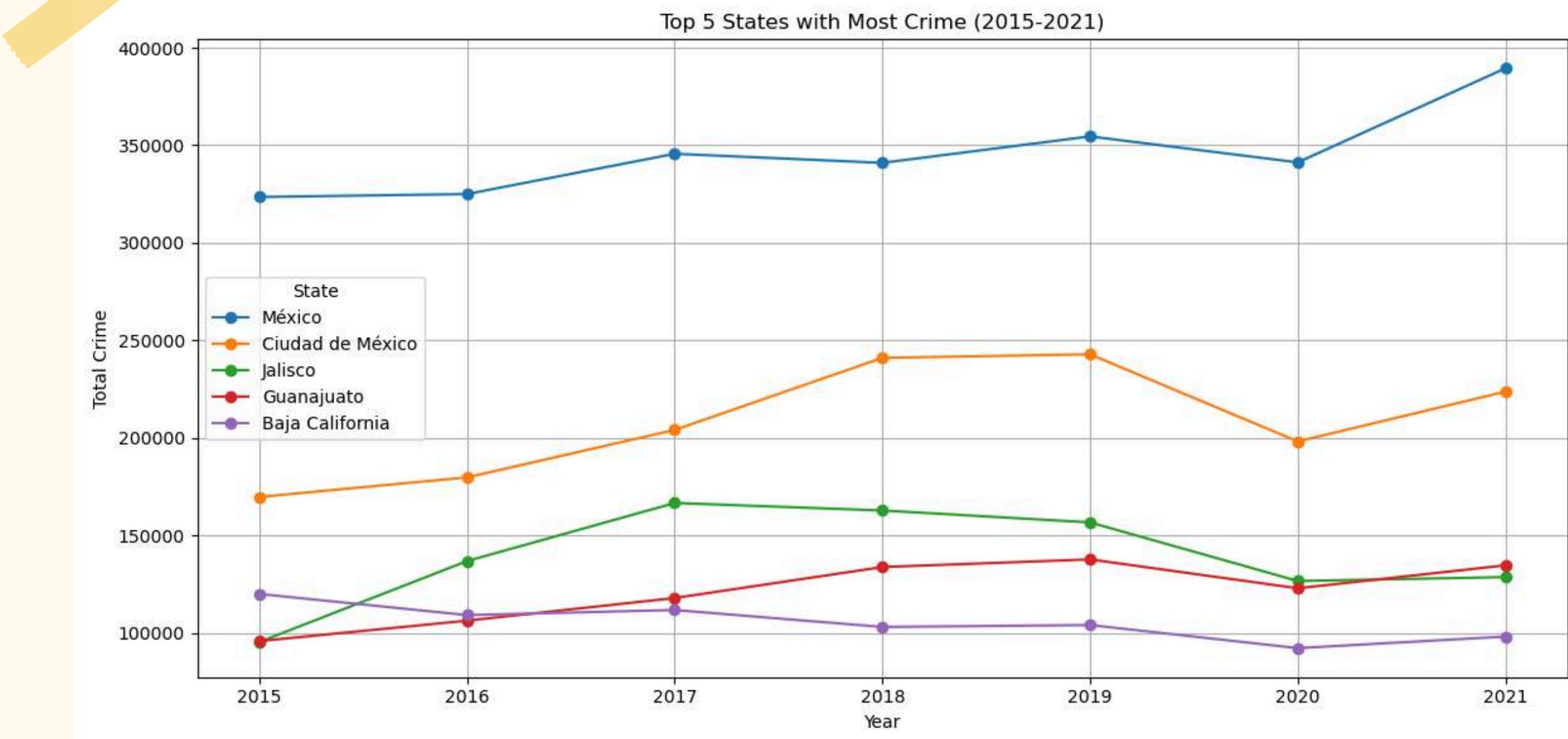
Overview of crime data in Mexico and filtering process for crime types and years



Top 5 States with Most Crimes (2015-2021)

Crime per State

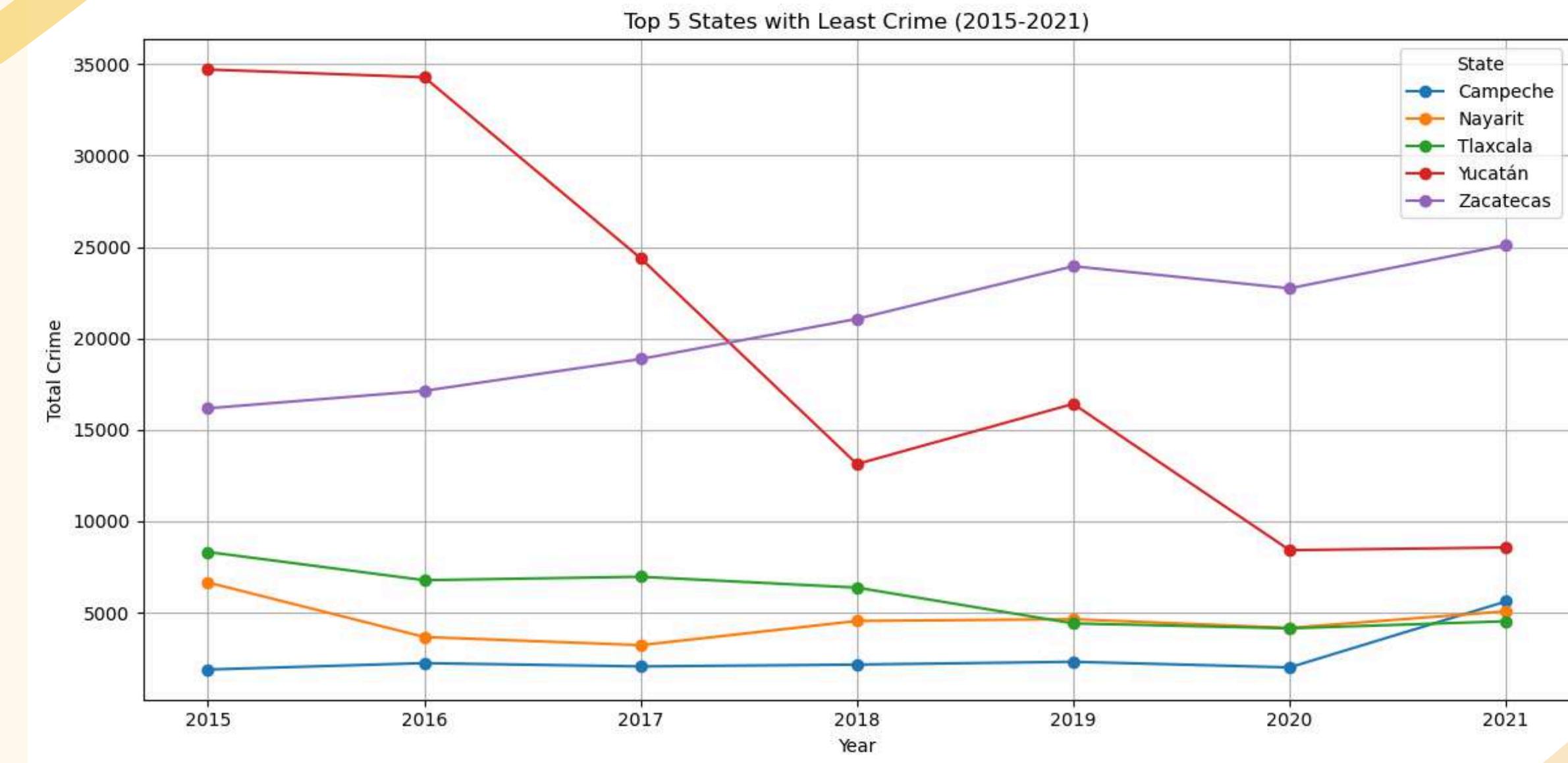
- Line chart showing total crimes by state (2015-2021)
- Analysis of states with the highest and lowest crime counts



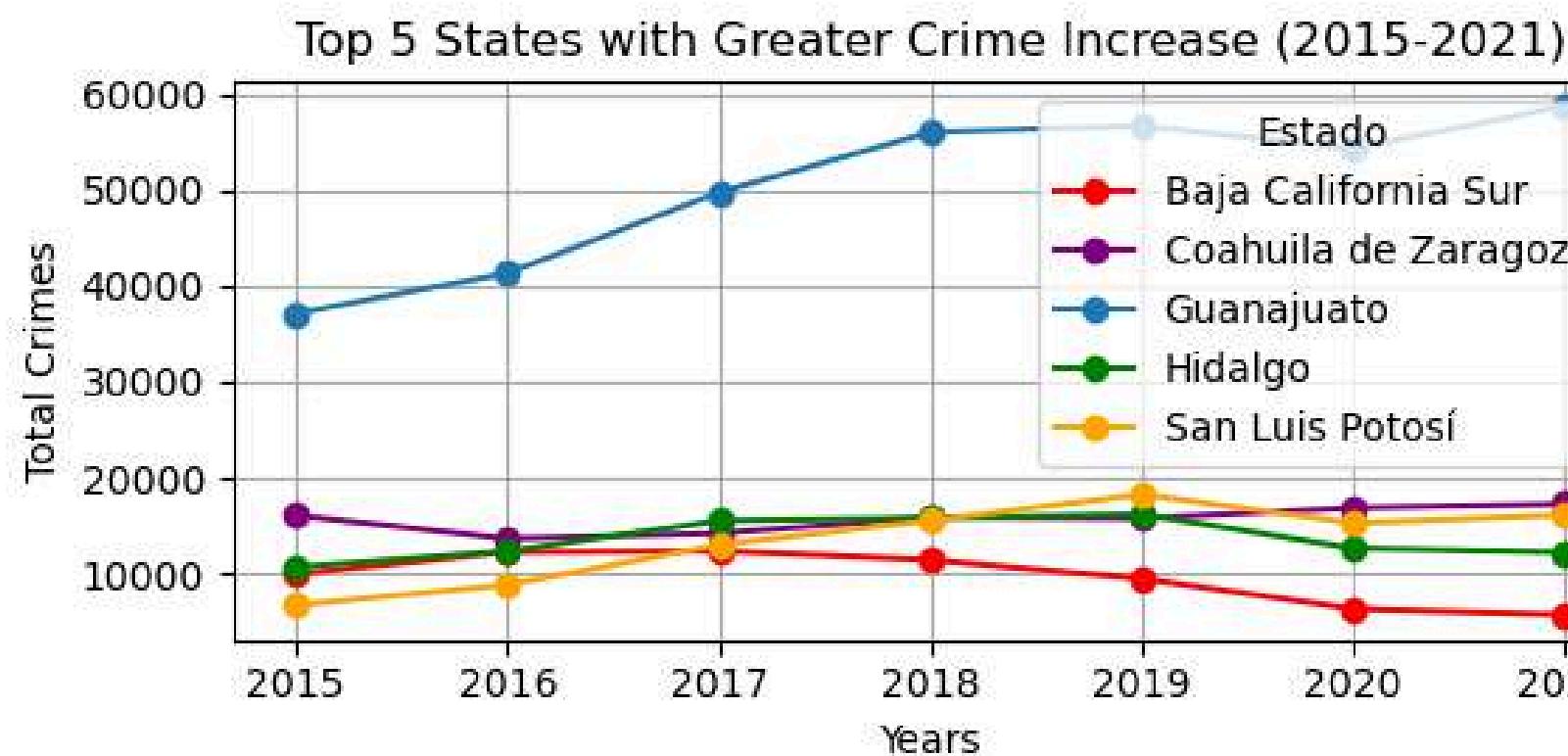
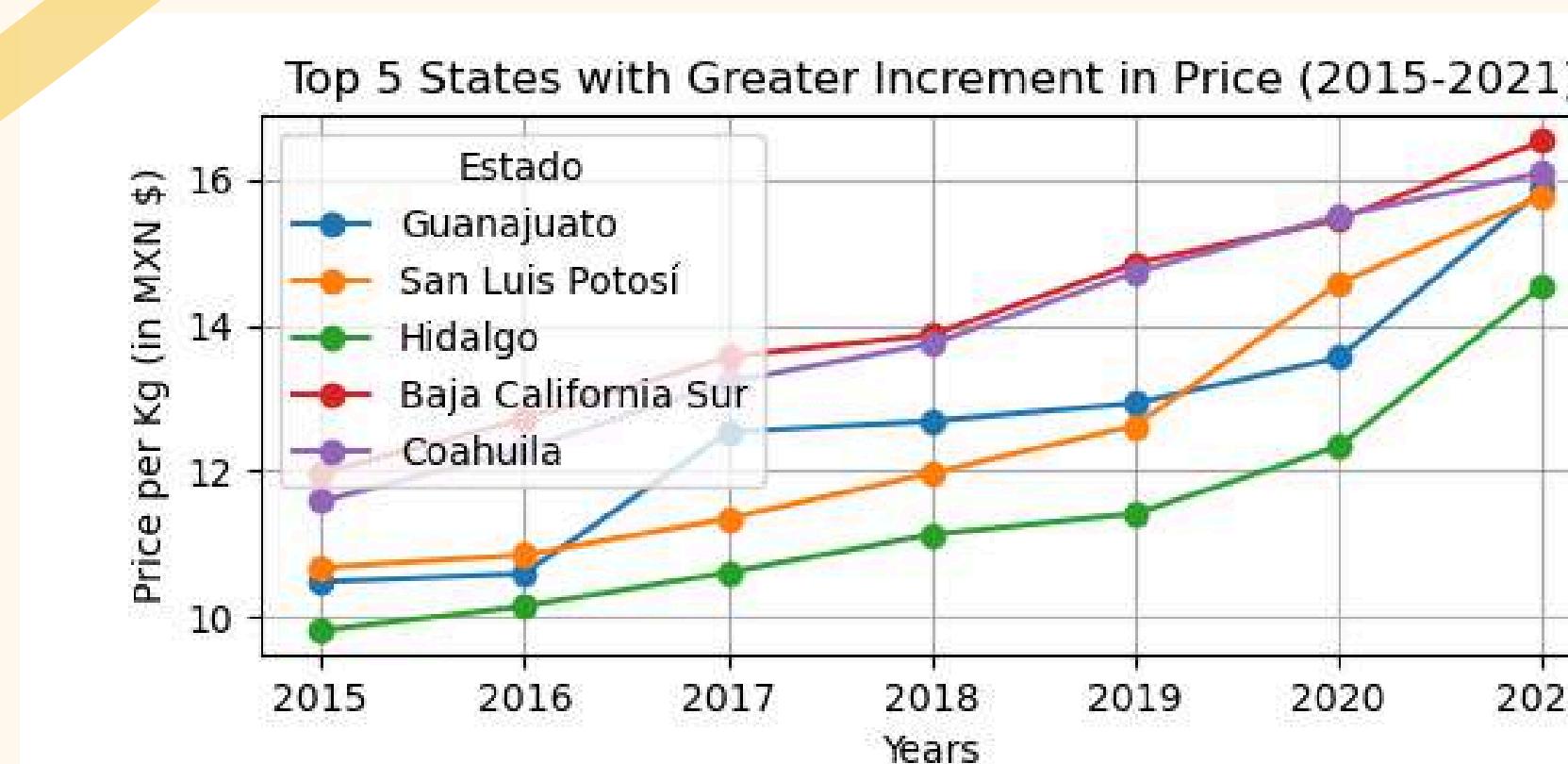
Top 5 States with Least Crime (2015-2021)

Crime per State

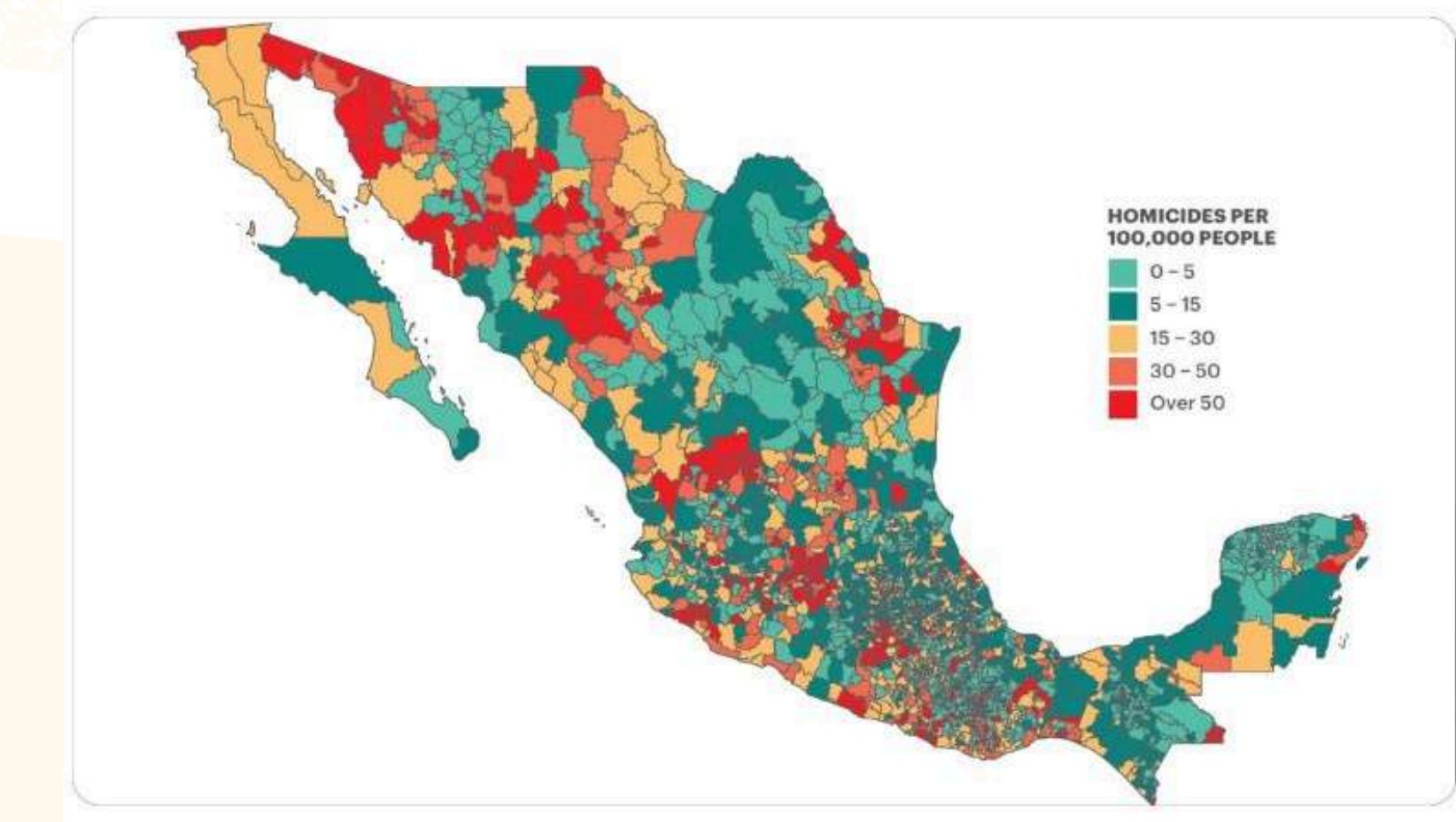
- Line chart showing total crime by state (2015-2021)
- Analysis of states with the highest and lowest crime counts



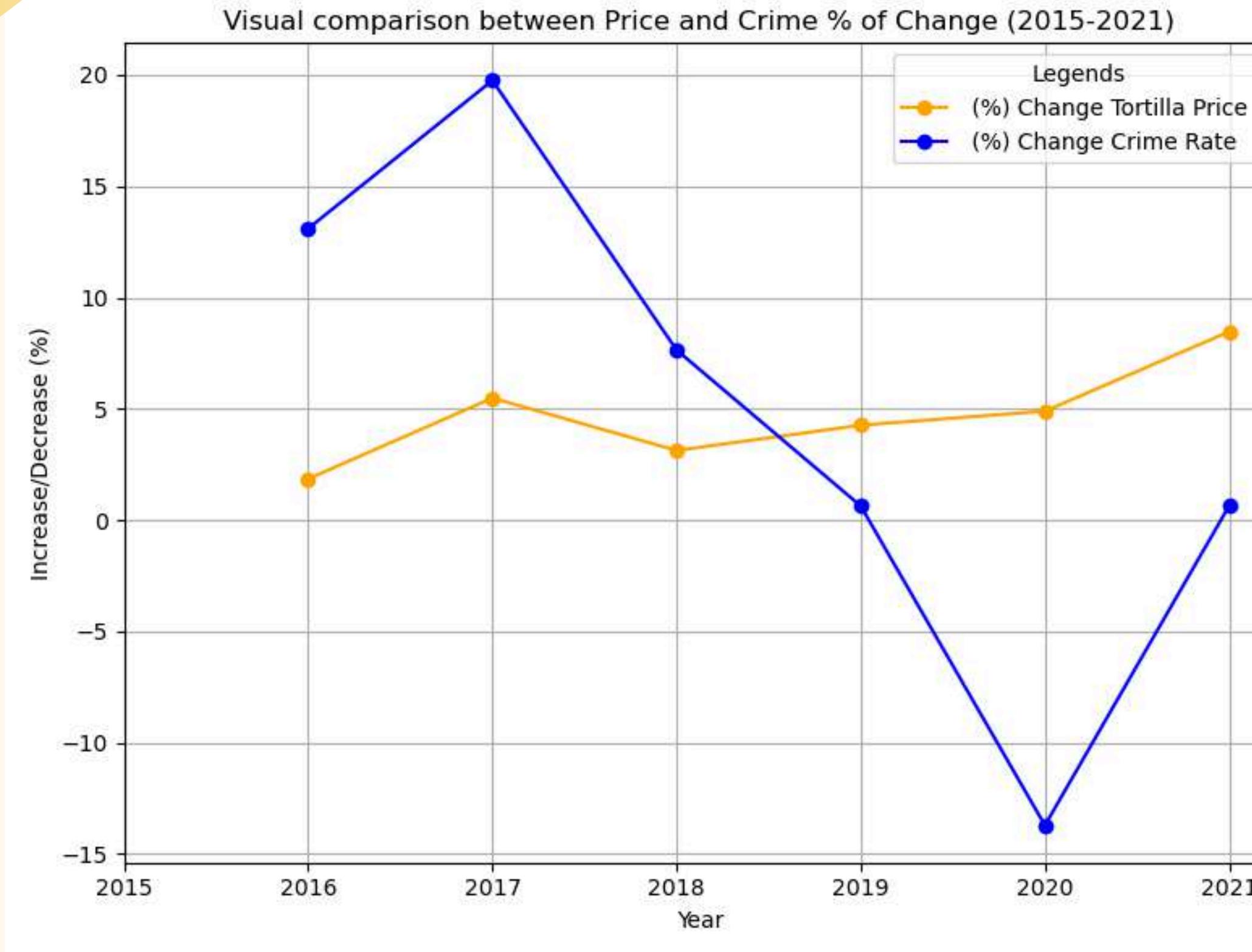
Visual comparison between price increase and crime change in the same states over the same period of time



- Line chart showing total crime by state (2015-2021)
- Analysis of states with the highest and lowest crime counts



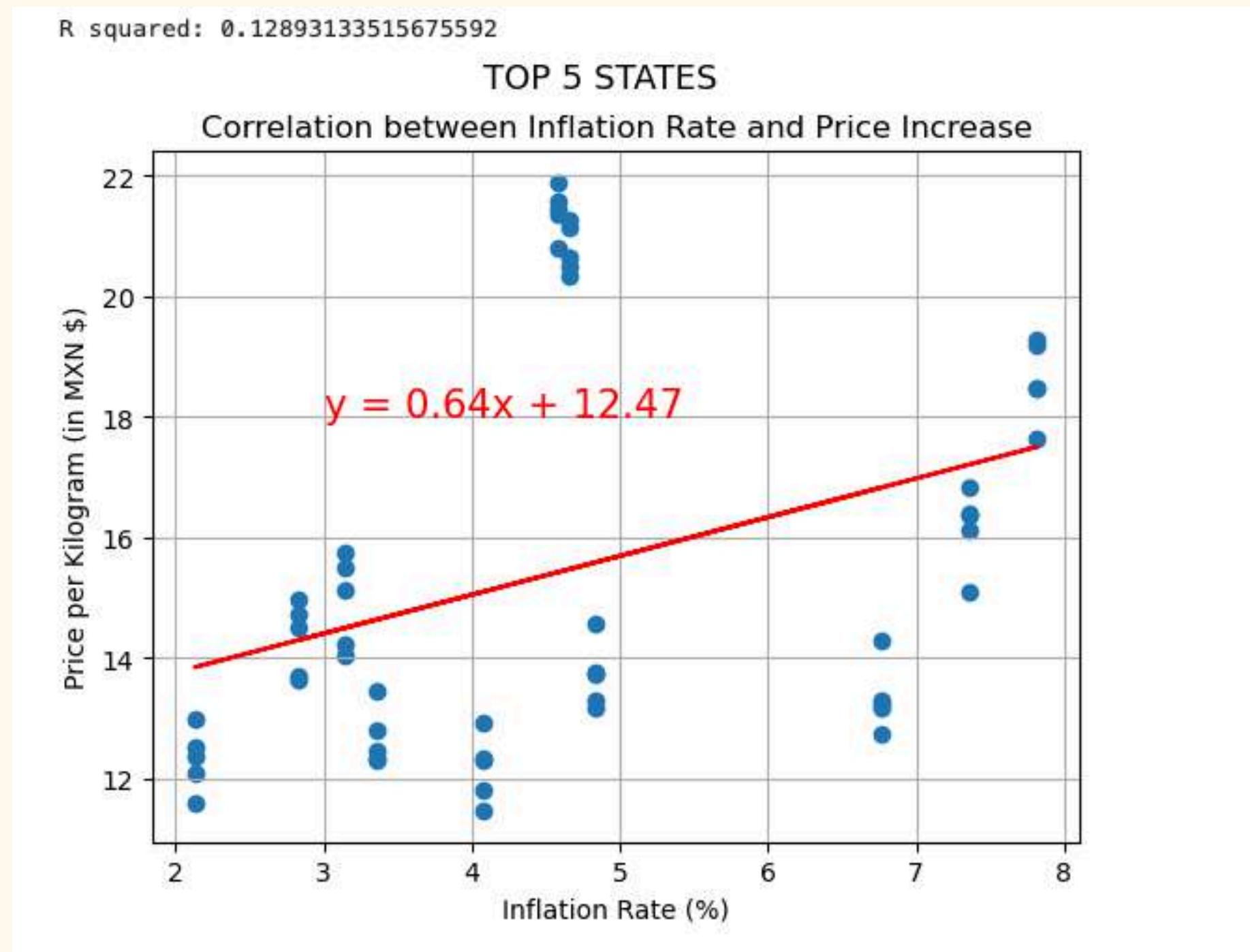
Visual comparison between Price and Crime % Change (2015-2021)



Correlation Analysis

Price vs Inflation

TOP 5 STATES



Correlation Analysis

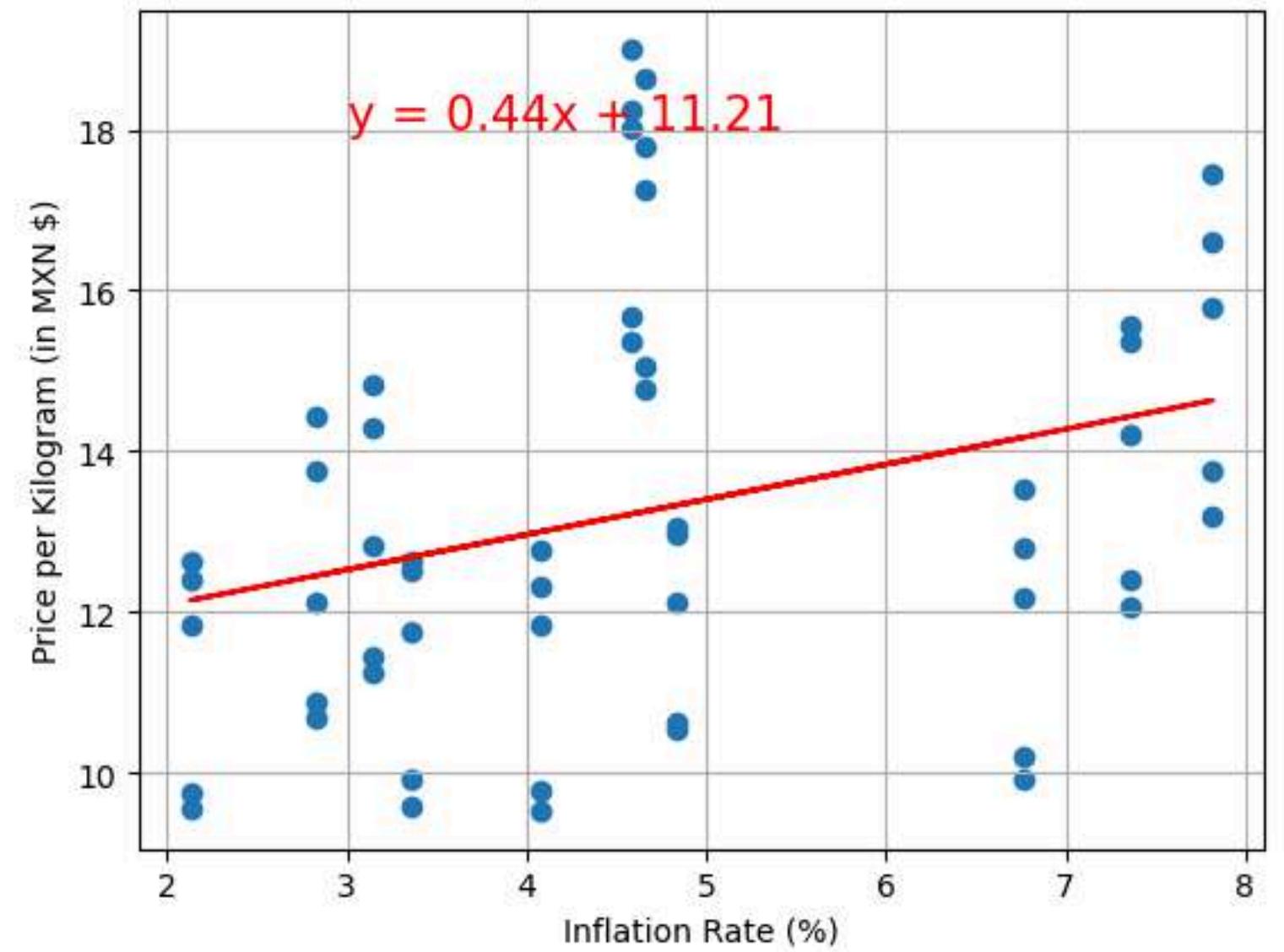
Price vs Inflation

BOTTOM 5 STATES

R squared: 0.09498412288660633

BOTTOM 5 STATES

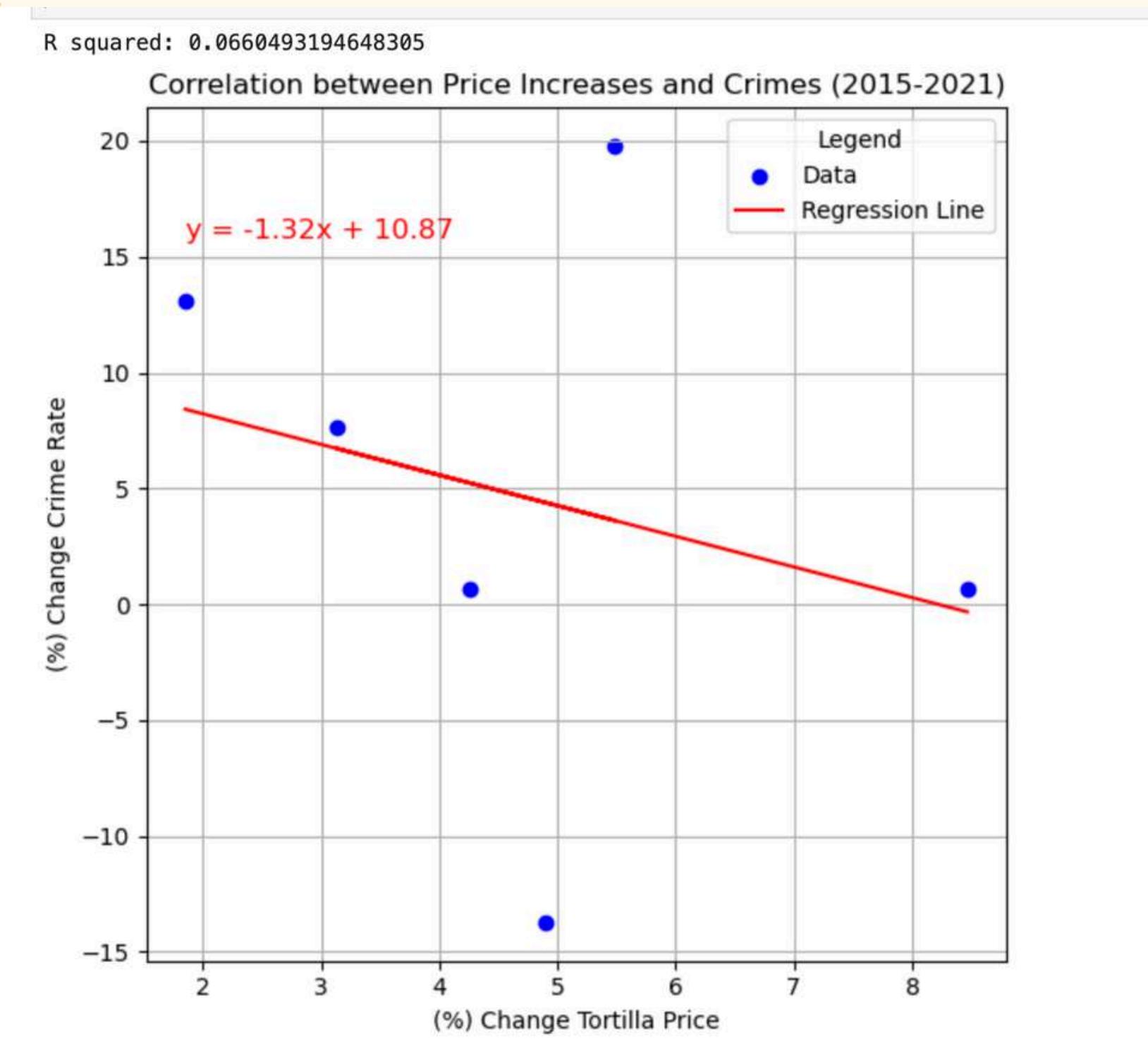
Correlation between Inflation Rate and Price Increase



Correlation Analysis

Price vs Crime Rate

TOP 5 STATES





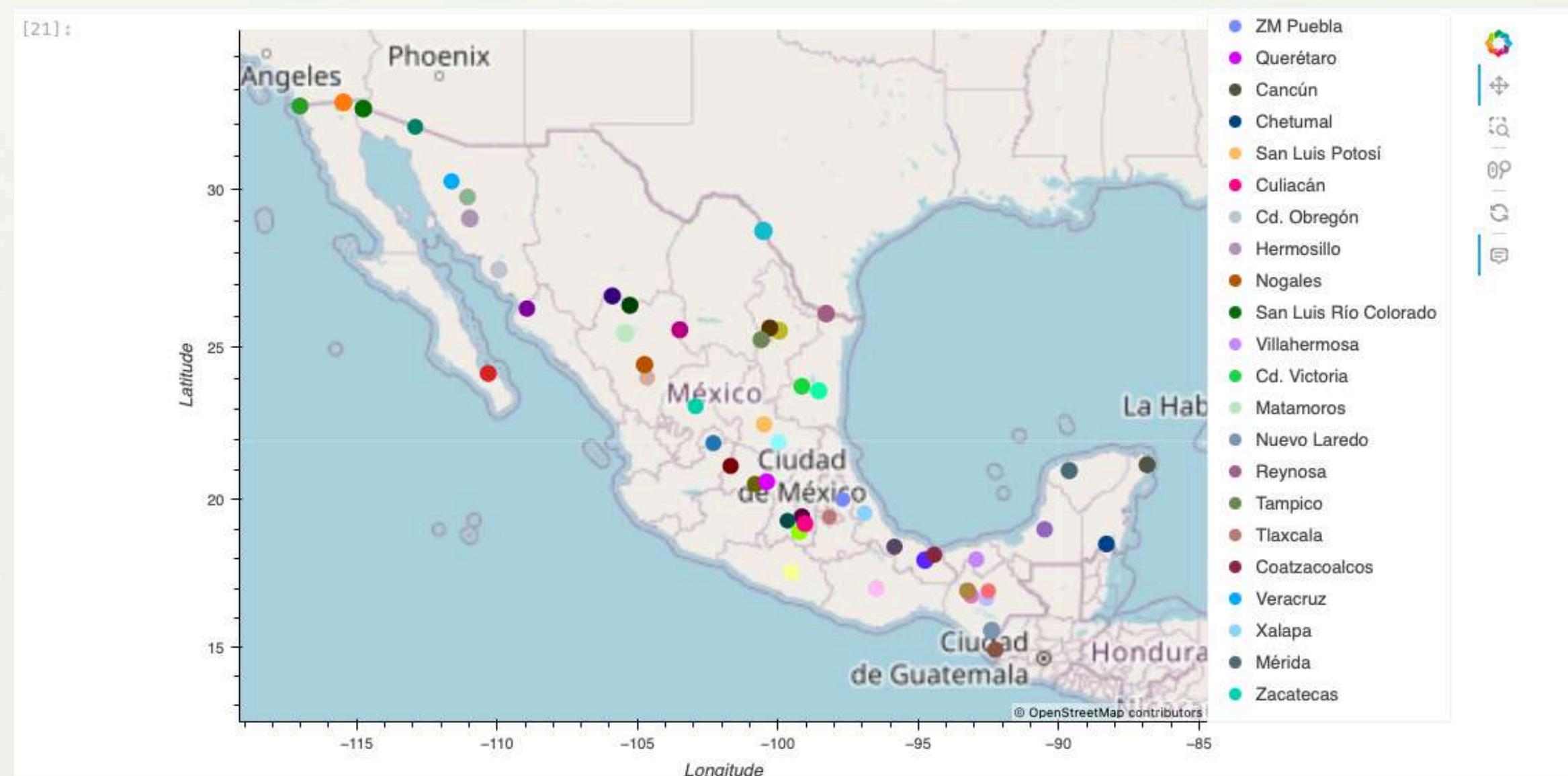
CAN WE CASH IN WITH
SOME OF THE
INFORMATION
OBTAINED?



Geoapify API Connection & Hvplot Maps

Connecting to the Geoapify API

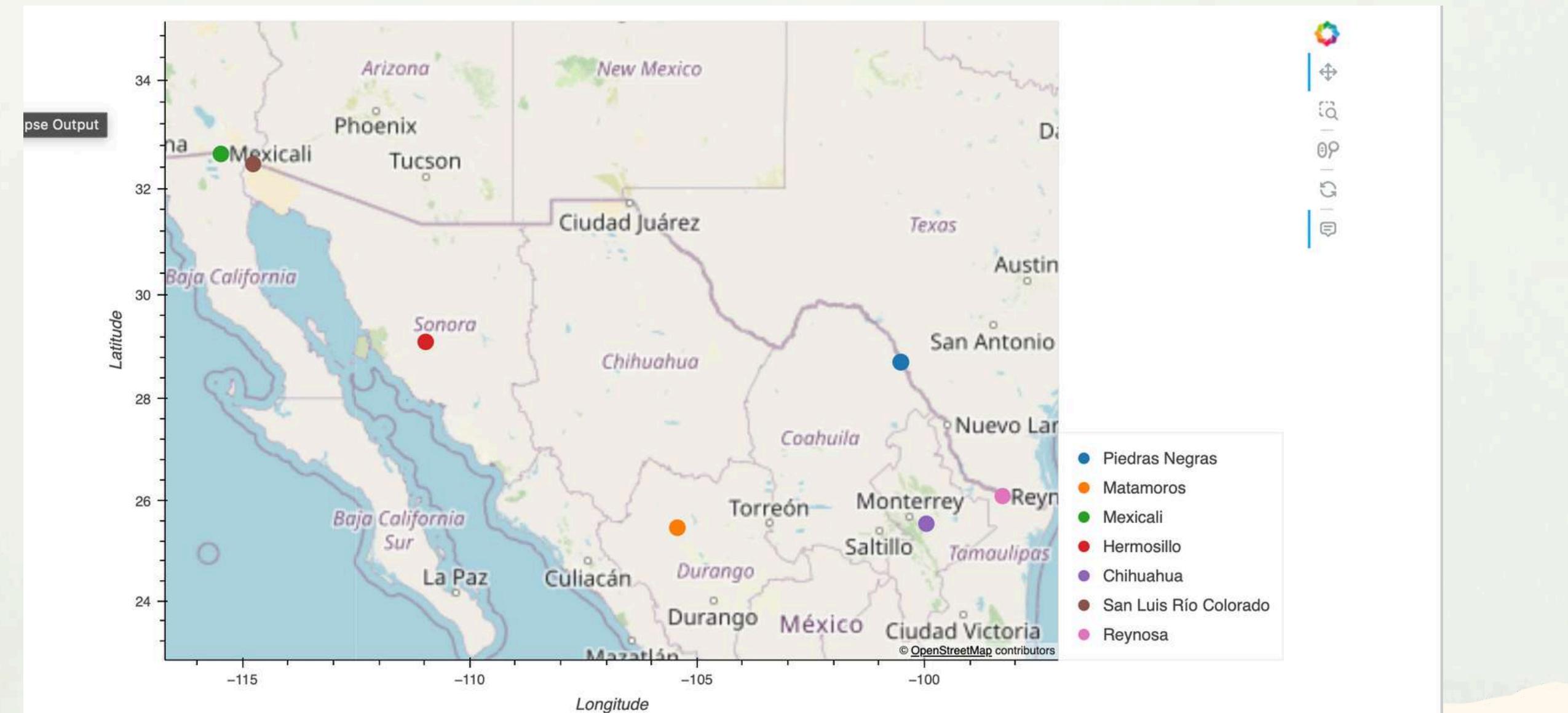
- For this part we connected to the Geoapify API in order to obtain Longitude and Latitude of the 54 cities that we had in our original Dataframe to plot them in a map
- As we can see the cities were taken from all regions of Mexico:



Geoapify API Connection & Hvplot Maps

Obtaining the 7 cities in Mexico with the most expensive tortilla price in 2024

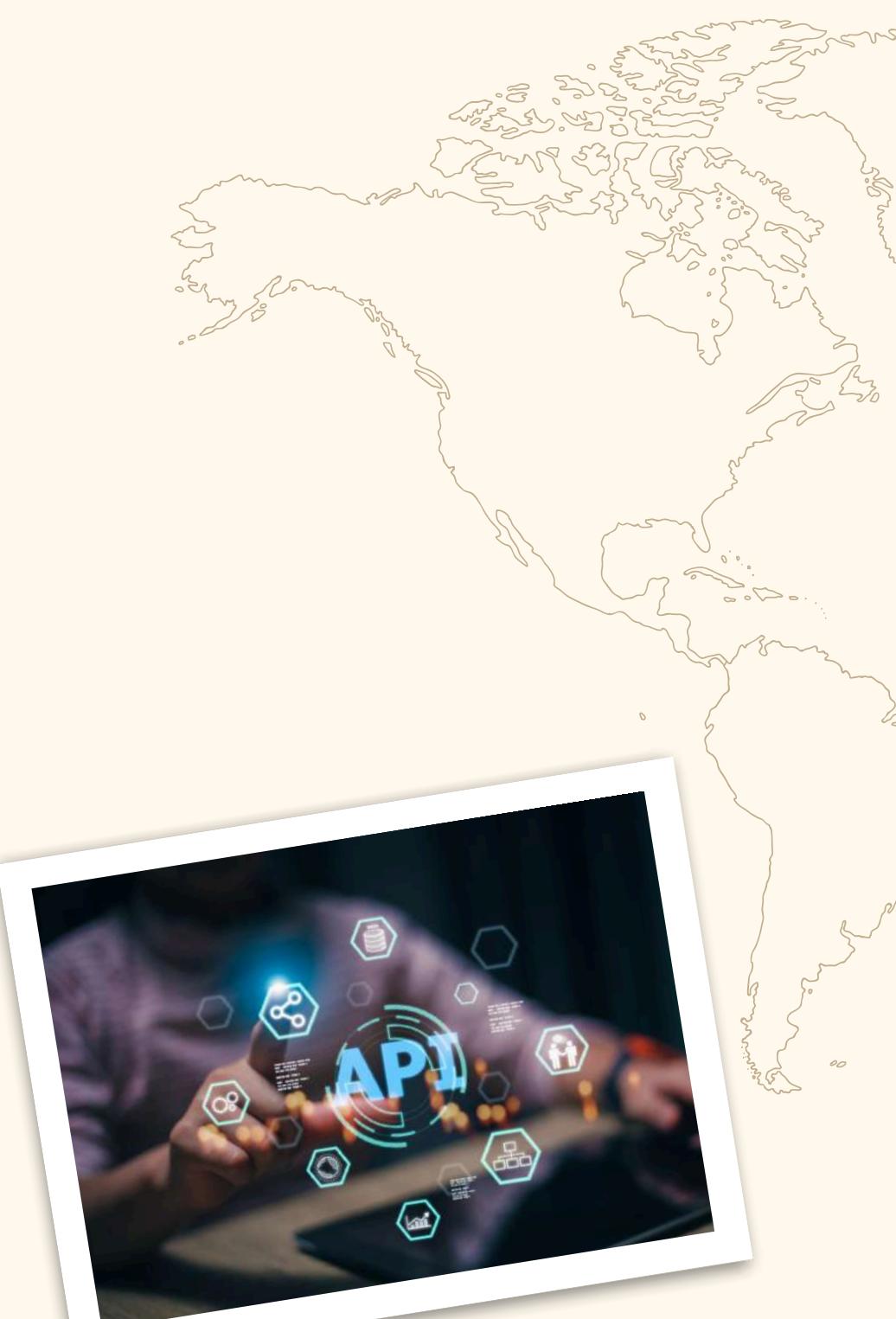
- We then sorted the cities by the most expensive tortilla price to the cheapest in 2024
- We separated the 7 cities with the most expensive tortilla price to see where they were located, and as expected, these were located in the northern part of the country



Geoapify API Connection & Hvplot Maps

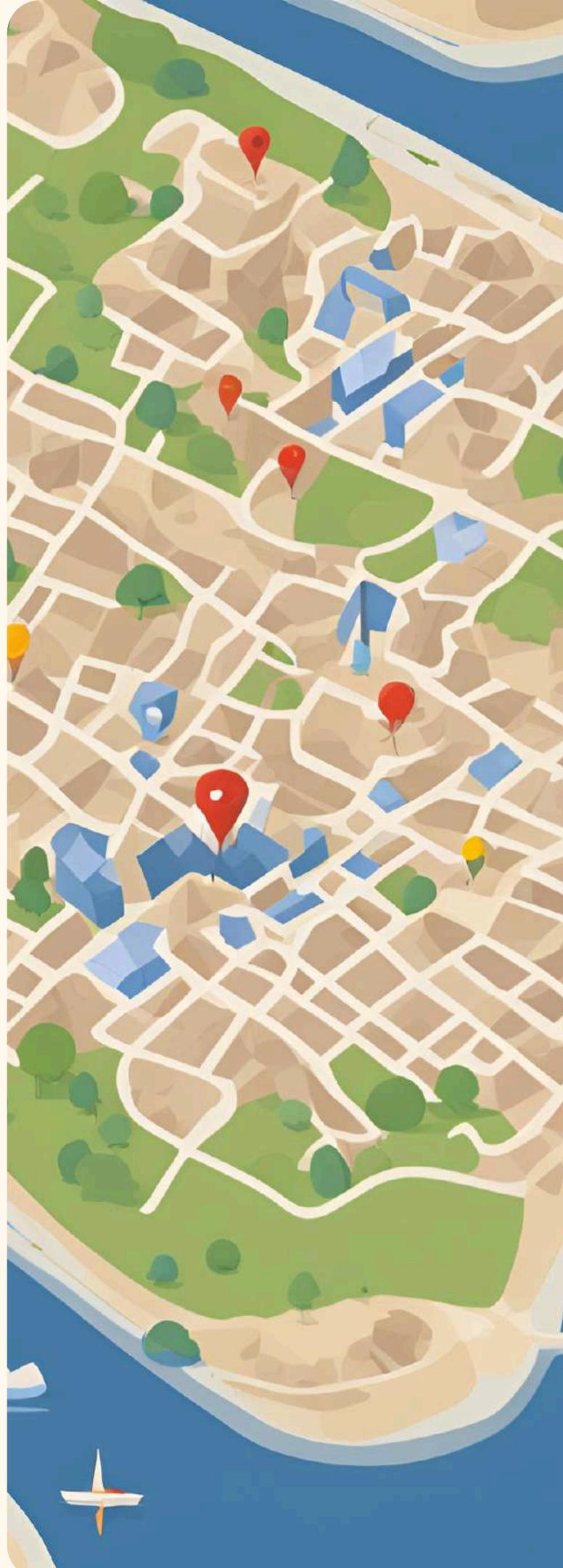
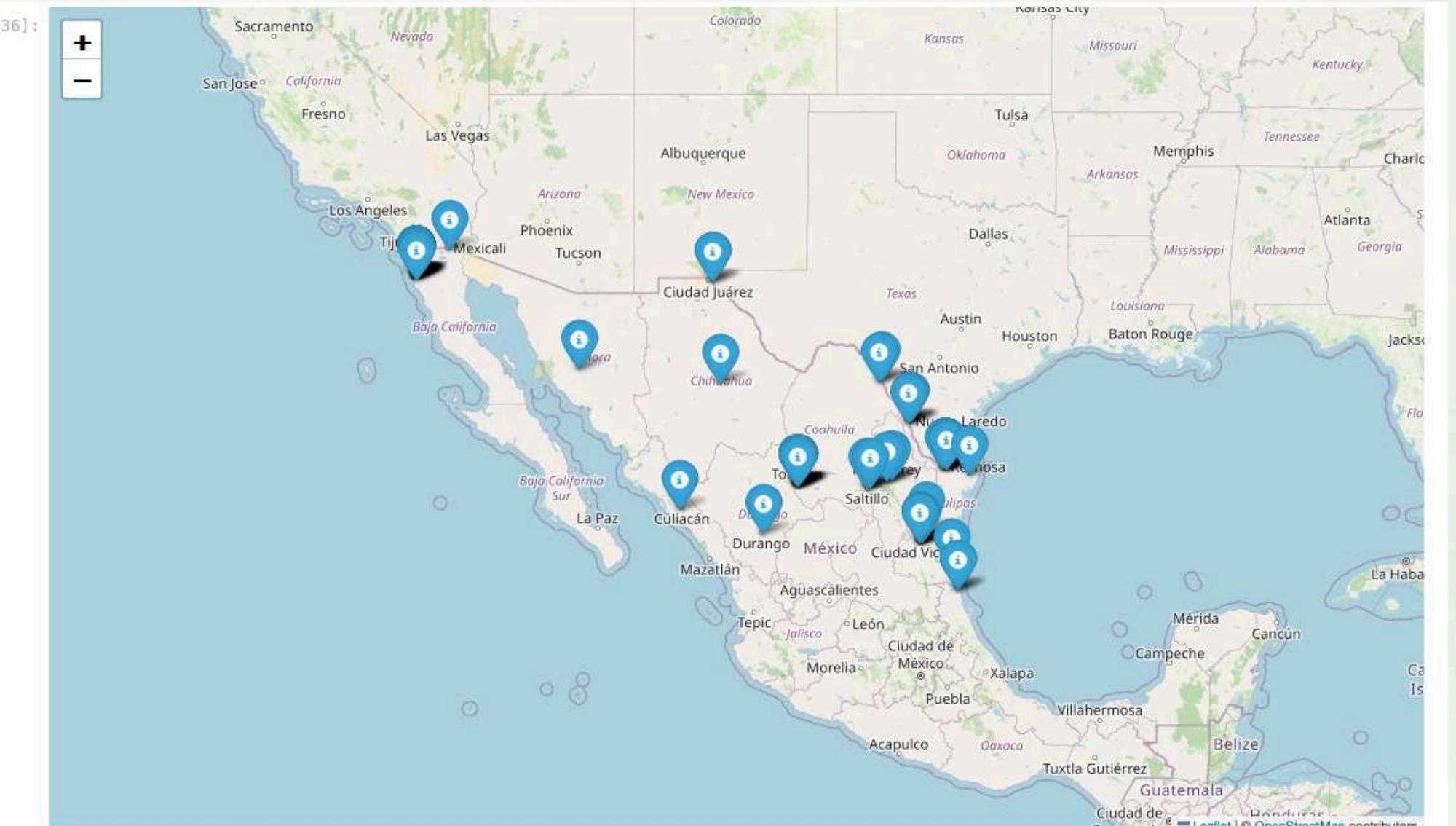
Obtaining the 7 cities in Mexico with the lowest tortilla price in 2024

- We then separated the 7 cities with the lowest tortilla prices to see where they were located, and as expected, these were located both in Mexico City and in the center and southern part of the country



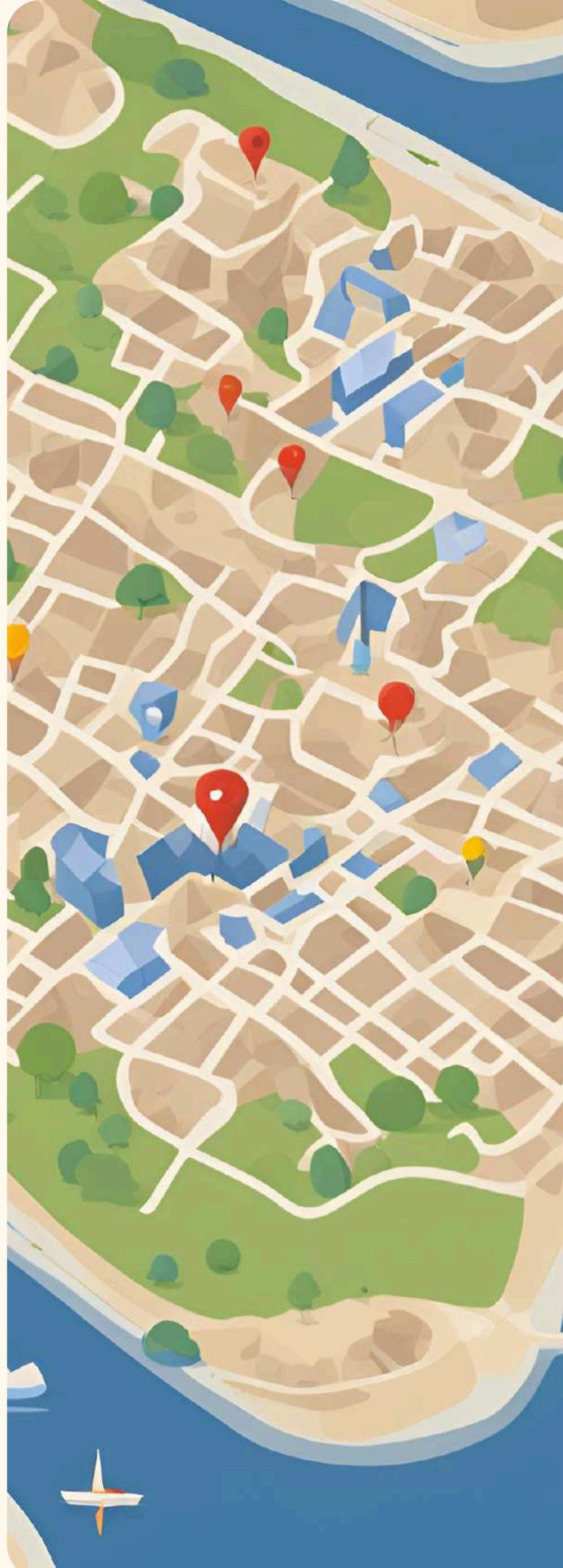
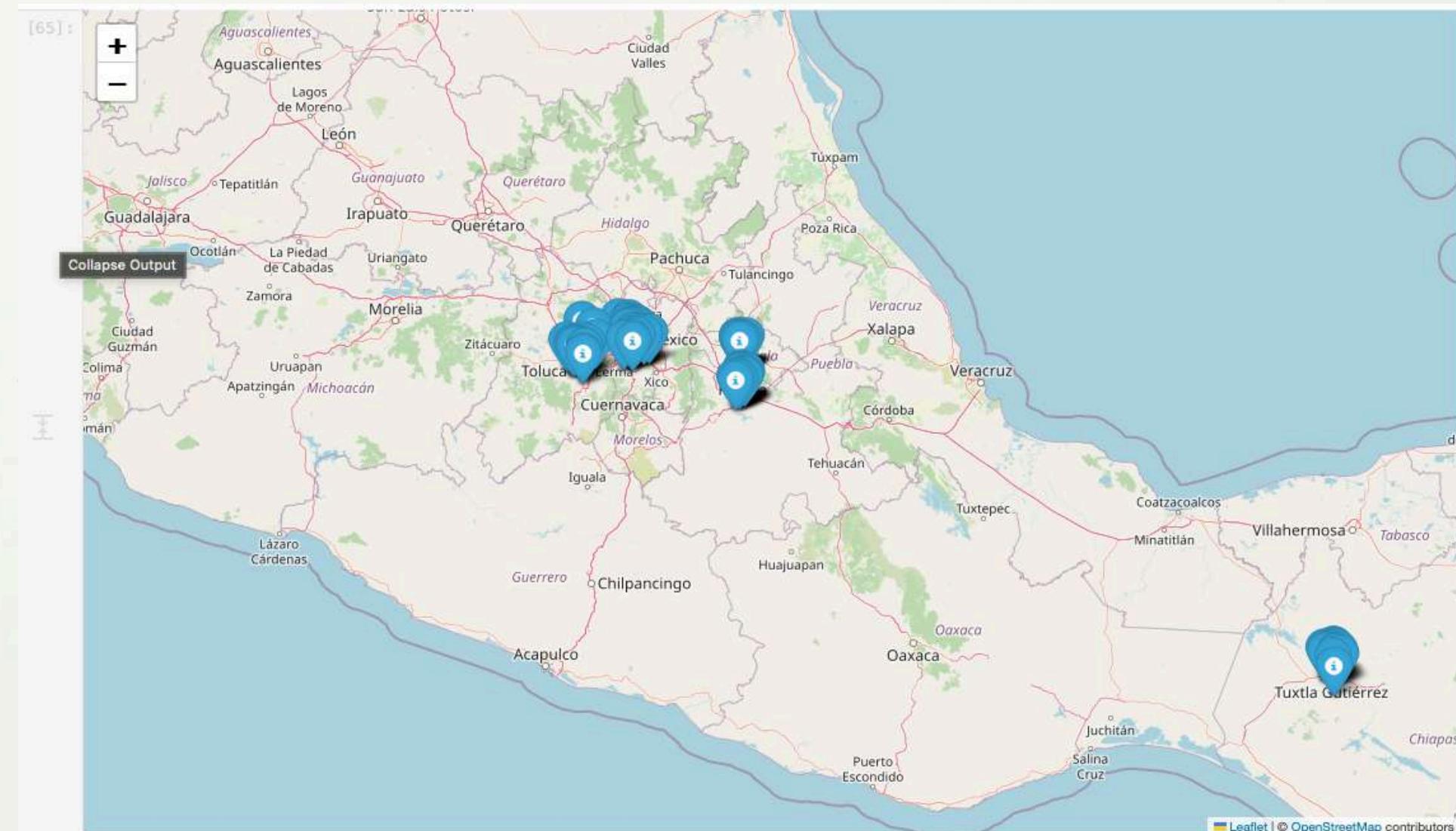
Google Maps API Connection & Folium Maps

- With the information of the 7 cities with the highest tortilla price, we obtained a Dataframe with the keyword “tortillerias” [tortilla shops] stored in the Google Maps Places API database within a radius of 20,000 from each city.
- We also displayed the information with the folium maps dependencies, in order to be able to zoom in and out the map.



Google Maps API Connection & Folium Maps

- With the information of the 7 cities with the lowest tortilla price, we obtained a data frame with the keyword “tortillerias” [tortilla shops] stored in the Google Maps Places API database within a radius of 20,000 from each city
- We also displayed the information with the folium maps dependencies, in order to be able to zoom in and out the map.



Economic agents who might be interested in the information:



MASECA®



Walmart

- Companies that sell supplies for making tortillas.
- Companies that sell machinery for making tortillas.
- Medium and big retailers.

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Conclusions

- There may be other factors that better explain the increase in the price of tortillas in the last 10 years in Mexico, such as the increase in the price of corn and wheat or the increase in the price of fuel for the machinery that processes them.
- The increase in crime rates in Mexico for crimes that impact may have an effect on the household economy does not significantly affect the price of basic needs such as tortillas.
- There may be agents interested in knowing the different prices that tortillas have throughout Mexico since it is a food with a high market value given all the economic agents related to it.





A central white rectangular area contains the text "Thank you for your attention" in a large, bold, dark red sans-serif font. The background is filled with various Mexican-themed illustrations: on the left, two women in traditional green and yellow dresses; in the center, a pyramid and cacti; on the right, a man playing a guitar and a bowl of guacamole.

Thank you for
your attention

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